Keyboard Video Mouse

Switch

4 PORT / 8 PORT / 16 PORT

User's Guide

KVM

Contents

The products are tested and complied with FCC, CE and VCCI standards for electromagnetic interference.

FC CE VCI

----------------------- Introduction

Overview

Thank you for your purchased our products, The KVM Switch allows you to access multiple computers from **one** keyboard, mouse and monitor without extra interface card or software. KVM installation is as easy as connecting cables between the KVM Switch and your computers. Operation is just pressing push button, key in hot-key command or operating through the function of user-friendly on-screen menu (available for models with OSD only: XXXX**D** series), it's simple and easy.

Serial Mouse Conversion (RS-232 Interface)

The KVM Switch you can connect computers with PS/2 or serial mouse port and control all PCs use one PS/2 mouse from the KVM console port.
(Computer side need a PS/2 to Serial port adaptor if connect to computer serial port).

High Video Quality

The KVM Switch supports VGA resolution up to 1920 x 1440 (Max., bandwidth 300MHz)* and DDC1/2B compatible.

On-Screen Display (OSD) Menu   For 4 / 8 /16 Port (OSD models only: XXXXD)

For KVM Switch with built-in OSD menu, you can rename your computers, select to a computer from a menu, also configure settings, view the selected computer like: name, time interval setting, security function setting (lock/unlock, channel authorize setting, password), ...etc.

* Dependants on the quality of testing monitor and VGA card, VGA cable, then both PC port and Console port can be distance up to 20 – 30 meter.

Features

◆ PC port supports both PS/2 and serial mouse (specify adaptor)
◆ Supports Microsoft IntelliMouse (Pro), Optical, Mouse Man, Wheel Mouse, Scroll Point and Serial Mouse,…,etc.
◆ Keyboard states automatically saved and restored when computer channel switching
◆ Hot-key functions available for easy access computers
◆ Single hot-key for channel left/right shift sequentially. (left/right Alt)
◆ Auto-scan can automatically switch computers sequentially (OSD model can setting auto-scan conditions)
◆ Buzzer sound On/Off selectable
◆ Hot-key Scroll Lock/Caps Lock selectable
◆ Cascade configuration expands system capability (64 to 4096 PCs)
◆ Operating system independent, transparent to all applications, no any software or hardware add
◆ Plug and play system configuration
◆ Keyboard and mouse can be hot plugged at any time
◆ High VGA resolution 1920 x 1440 (Max. bandwidth 300MHz)
◆ PC port keep alive capability, KVM powering down and all PC will still keep active

Hot-Key function

◆ Select and access computers
◆ Sequential channel shift (left-decrease, right-increase)
◆ Scan function and time interval setting (Non-OSD model)
◆ Buzzer sound On/Off selectable
◆ Hot-key Scroll Lock/Caps Lock selectable

Extra function for On-Screen Display model

◆ Assign computers names for more easy to identify
◆ Identify and select computers by the names
◆ Programmable scan conditions and scan time interval
◆ Password security lock/unlock access
   (Default Name: admin.   Password: 123456)
◆ Store all setting information to non-volatile memory
◆ User friendly OSD interface

Configurations

Single KVM Switch Configuration

For your system safety purpose, you must turn off all PCs and Monitor during the configuration

After plug in KVM power adapter, connect a PS/2 keyboard, a PS/2 mouse and a multi-sync VGA monitor to the KVM **CONSOLE** port. After that, connect the KVM cables (keyboard, mouse and monitor) between the KVM **PC** ports and computers, as shown in figure 1.
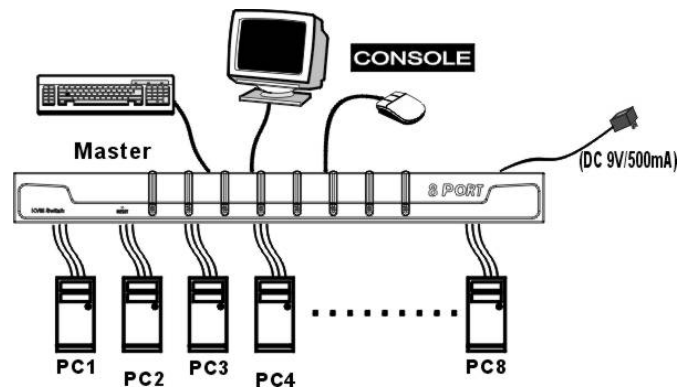

Figure 1: Single KVM Switch configuration

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Cascade (Master/Slave) Configuration

Master KVM unit: <u>has a physical keyboard, mouse and monitor connected to its **CONSOLE** port, any PC port can connect computer or another KVM.</u>
Slave KVM unit: <u>is a KVM Switch that has its **CONSOLE** port connected to the *Master's* **PC** port.</u>

First, plug the power adapter to the *Master KVM*. Then connect the console device and PC port link.   You can connect a second and third level of one or more KVM Switches to any PC port of the *Master KVM*.   Cascade configuration expands system ability allowing you to select computers connected to the *Master* or *Slaves*. There is only need a mouse, a keyboard and a monitor connected to the **CONSOLE** port of *Master* and its can directly operated by a user. After connected, KVM Switches automatically configure *Master* or *Slave* by themselves.   *Slaves* can be mixed different KVM Switch models in cascade configuration, show as figure 2.
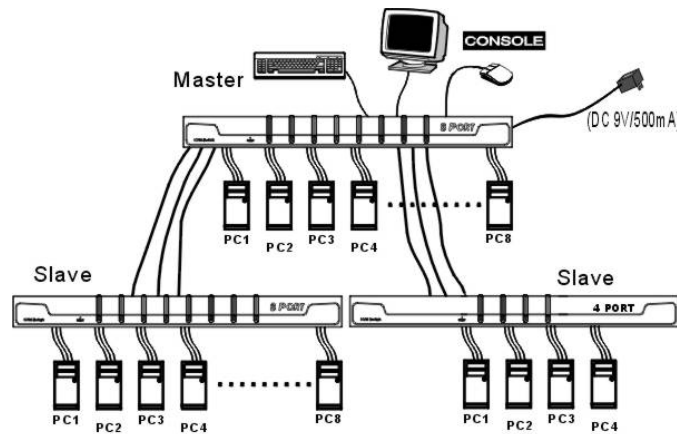

Figure 2: A cascade KVM Switch configuration

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----------------------- Installation

Connection

***For your system safety, please make sure all PCs and Monitor
or other devices are powered down during the installation***

Console Device Connection

First, plug the power adapter to KVM. Then connect the **CONSOLE** and **PC**.
The monitor connected to the HD-DB-15 VGA port of a *Master* **CONSOLE**
port. Connect a PS/2 mouse and a keyboard to the **CONSOLE** port
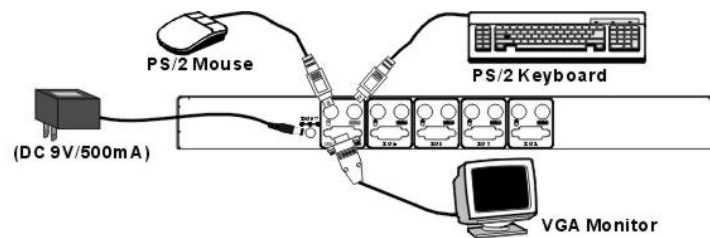respectively with a mouse and a keyboard marked as shown in figure 3.

Figure 3: Master console connection

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Computer Connection

For computers using PS/2 mouse, connect the computer's mouse and keyboard cables to the KVM Switch's PC ports marked with a mouse and keyboard respectively.   Connect the computer's monitor cable to the HD-DB-15 VGA connector. As shown in figure 4.
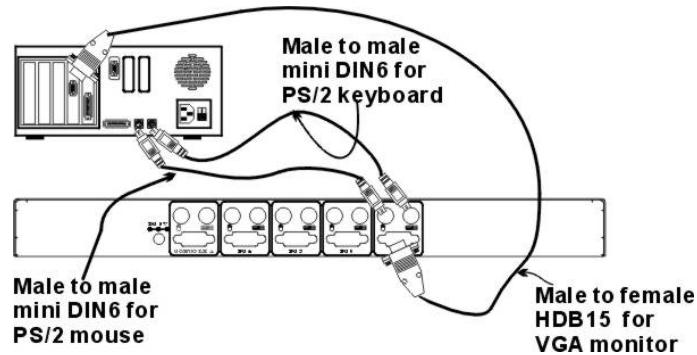

Figure 4: Master computer connection

For computers using serial mouse, connect the DB-9 to mini-DIN-6 adapter (supplied from manufacturer or agent) to the computer serial port, then connect KVM cable from the mouse adapter to KVM Switch, see Figure 5.
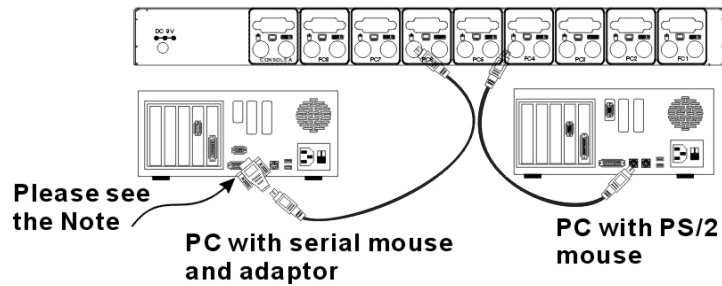

Figure 5: Adapter and serial mouse connection

Note: you can ask your agent or manufacturer for this mouse adaptor.

Initial Power-Up Process

Make sure all computers and KVM Switches are powered down during installation. You must power up the Master KVM Switch before turning on any other devices.

> ▸ *For single KVM Switch:*
> 1) Apply a power adapter to the *Master*. (after cables connected)
> 2) Turn on computers.
> ▸ *For cascade:*
> 1) Apply a power adapter to the *Master*.
> 2) Apply power adapters to all *Slaves*.
> 3) Turn on computers.

Note: You may hot plug any powered-down computer and *Slave* KVM at any time after initial power up process completed.

Hot Plug Capability

Master Console Devices Replacement

You can replace a keyboard or mouse of the *Master* **CONSOLE** port at any time without powering down the Master KVM.

PC Port Hot Plug and Hot Swap

You can plug in or out of PC port or swap PC port at any time without powering down the KVM.

Note: Some PC was not support PnP configuration and it will need to rebooting after Hot swap.

In case, some devices need to rebooting or software driver initial, you may press the **Reset** button in the KVM front panel to re-start the KVM initial process.

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Rack Mount Accessories

Figure 6 shows how to attach mounting brackets to the KVM Switch unit for standard 19-inch rack cabinet.
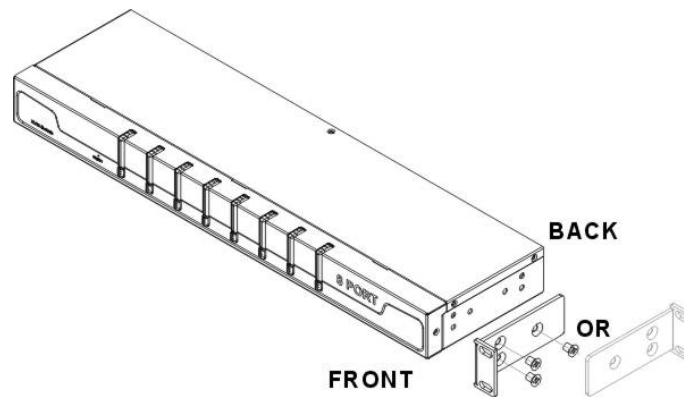

Figure 6: Attaching rack mount bracket

It can be mounting in the rack cabinet front side or back side.

Note: Some desktop model the rack mount kit is optional

Rubber Foot Placement

If user wants to desktop use, please stick the four round rubber feet (in small plastic bag with the unit) to the bottom of the KVM.

But do not use it for rack mount operation, it could be cause dimension problem in the rack cabinet.

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----------------------- *Operation*

Front Panel Push Buttons

You may select a computer by pressing the front panel push button directly, or press hot-key or activating the OSD menu(for models with OSD only). The front panel indicators(orange or red) will changes to the selected computer port and the connected computer power on the green indicator will turn on.   When KVM is in *Auto Scan* mode the selected indicator will flashes (orange or red)
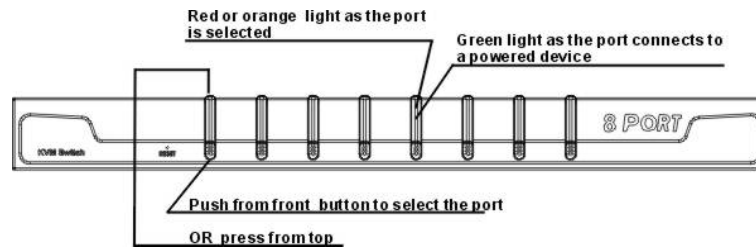

Figure 7: Front panel indicator

If the computer was support 'keyboard/mouse power up' function, (press certain keys or mouse buttons to startup the computers).   The front panel green indicators will light all the time even the computers are 'off'.

■ KVM RESET
In case the Device replacement or change of configuration cause some problem, pressing the front-panel Reset push buttons for re-configure the system without turning either the KVM Switch or any computer off.

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OSD (On-Screen-Display) Operation
4 port w/OSD, 8 port w/OSD, 16 port w/OSD (XXXD Series)
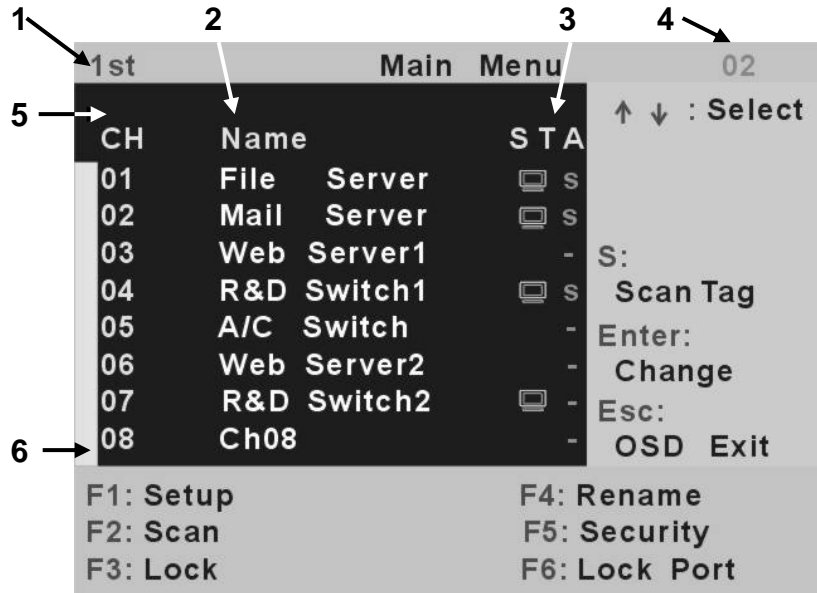
● **OSD Main Menu for Administrator**

Figure 8: Administrator OSD screen illustration

A. OSD Main Menu
   1. **KVM layer number:** 1st, 2nd, 3rd
   2. **PC name (define by user):** 31 characters (Max.)
   3. **PC Status:**
      ◀ Buzzer sound on (above the STA)
      ◀ Buzzer sound off (above the STA)
      L Locked port indication, normal is blank

      💻 Indicating the computer is power on

      s Indicating the channel scan function is on
   4. **Current channel number.**
   5. **Cascade channel number:** display cascade 2nd, 3rd layer
         Connected channel number, 1st layer is blank
   6. **Only for 16 port OSD.** (Next page) other model is blank

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B. Function control Menu

    F3: User Lock function will available when **F5** Security is set 'ON'
    F5: Security function and user priority setting
    F6: PC port lock function (administrator only)

● **OSD Main Menu for other user (1, 2, 3)**

1st	Main Menu	02

↑ ↓ : Select

CH	Name	STA
01	File Server	🖥 s
02	Mail Server	🖥 s
03	Web Server1	-
04	R&D Switch1	🖥 s
05	A/C Switch	-
06	Web Server2	-
07	R&D Switch2	🖥 -
08	Ch08	-

S:
  Scan Tag
Enter:
  Change
Esc:
  OSD Exit

F1: Setup
F2: Scan
F3: Lock

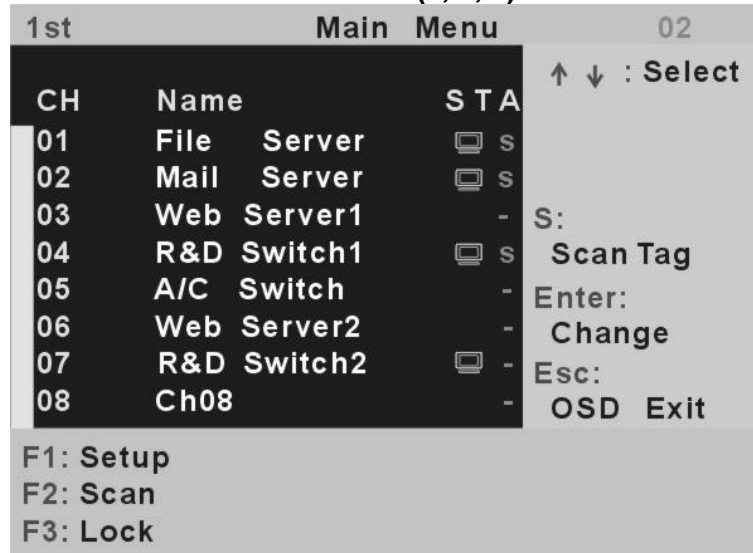*Figure: User OSD screen illustration* (F5 Turn ON first)

For administrator by pressing the <**Scroll Lock**> key twice and <**Enter**>, you will see an OSD '**Main MENU**' screen showing a menu of the computers with: channel number, names and other status and some function menu, please see **figure 8.**

The channel of the currently selected computer is displayed in the top right corner and a highlighted pink bar in the PC name list, to the right of the PC name '**STA**'. The sign 🖥 is display if computer has power on and ready for selection (its corresponding front panel indicator is green), if the sign 🖥 is blank, it has no power. OSD menu updates the sign 🖥 when computer is activated. Use the <UP> and <DOWN> arrow keys to highlight a computer and the <ENTER> key to select it and leave OSD menu. Or, you may press <ESC> to exit OSD menu.

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A plus mark (+) to the left of a name indicates the port is cascaded to a *Slave*; the number at the above of the channel number (left corner) shows the number of port the *Master* link, i.e. **8** means link from upper KVM port 8 (Master layer is blank).   <ENTER> key brings you one level down and the screen pops up listing the names of the computers on that *Slave KVM*.   The name of the *Slave* will be shown at the OSD menu.   It is useful to group computers and still be able to see the group name.

Press <R> will return to upper layer OSD menu.

Press <ESC> key to exit OSD and to return to the selected computer; the computer name is also shown on the screen (banner).

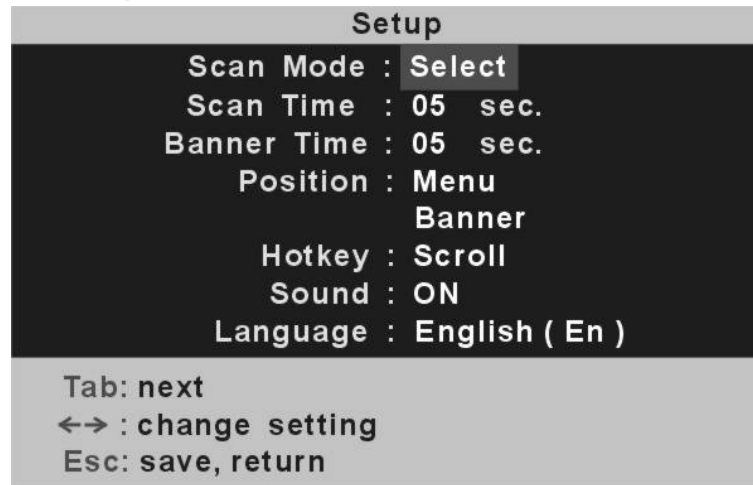● **F1: Setup Mode**

Figure: OSD setup screen

All change is use left/right arrow key (← →) to select it.

■Scan Mode: Select – Scan selected channel.

PC ON – Scan power on PC channel only.

■Scan Time: 5sec(Default) to 90sec., 5sec. a select step

■Banner Display Time: 5sec. (Default), 10sec., 15sec. and always on (∞).

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■Display Position: Menu – use four arrow key to move the OSD main menu

to the desire position.

Banner – use four arrow key to move the channel banner

to the desire position.

■ Hotkey: Scroll – Scroll Lock become the Hotkey.

Caps – Caps Lock become the Hotkey.

■ Sound: ON – Buzzer sound active (turn on)

OFF – Buzzer sound disable (turn off)

■ Language: English (En) / Deutsch (De) / Francais (Fr),   three countries.
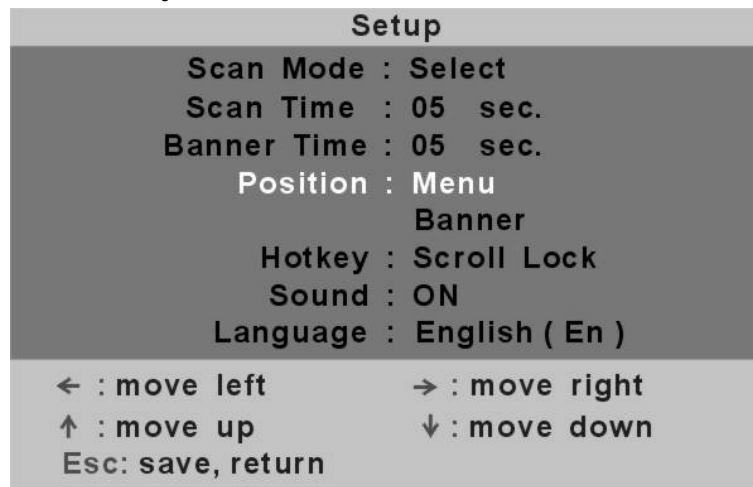
● **Position Adjustment**

Figure: Select the item to setup

After into the banner Display Position the display will become:

● **Channel Banner (Single Layer)** (Max. 22 characters)

| 01 | Channel 1 |

```
 ┬                    ───────────┬──────────
 |                                └PC (Channel) Name
 └─────────────────────────── Channel (PC) number
```
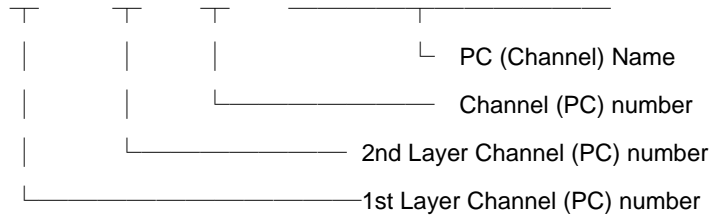
■ PC power on or change channel by OSD/Hot-key, this banner will

display 5 sec. then disappear.

User can change display time in the Setup Mode (F1).

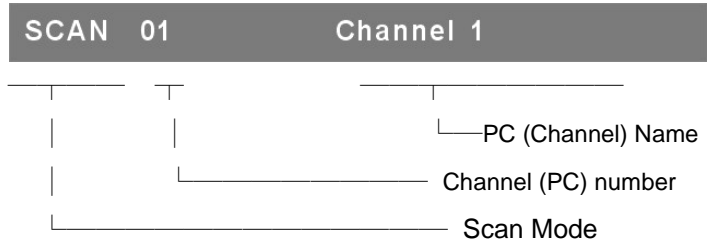● **Channel Banner   (Multi-Layer)** (Max. 22 characters)

| 01 - 03 - 02 | Channel 1 |

```
 ┬    ┬    ┬   ───────────┬──────────
 |    |    |              └   PC (Channel) Name
 |    |    └───────────── Channel (PC) number
 |    └──────────────── 2nd Layer Channel (PC) number
 └────────────────────1st Layer Channel (PC) number
```

■ PC power on or change channel by OSD/Hot-key, this banner will

display 5sec. then disappear.

User can change display time in the Setup Mode (F1).

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● **Channel Banner (Scan Mode)**

| SCAN | 01 | Channel 1 |

└─── PC (Channel) Name

└────────── Channel (PC) number

└──────────────── Scan Mode

■ Stop scan: press any key.

■ Banner will disappear when the scan is stop.

● **F4: Rename** (New Name: 31 characters Max)

| 1st | Main Menu | 02 |

↑ ↓ : Select

CH	Name	S T A
01	File Server	🖥 s
02	Rename
03	Chanel : 03
04	Name : Web Server1
05	
06	New Name : ATT12345
07	
08	Enter : Save New Name
	ESC : Without Save

F1: Setup   F4: Rename
F2: Scan   F5: Security
F3: Lock   F6: Lock Port

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● **F5: Security Mode**

Admin.　　　　Password :

Entry Password:

(Default User Name: admin, Password: 123456)

After entry correct password, Security function is enabled.

After the Security mode set 'ON', then F3 Lock Mode will be enable Automatically (it will display on the Main Menu).
Also the Hot-key Lock function (H) will available.

After security on, you can active lock function (F3 or <H> hot-key), until key

in a password, the console will be locked (like log out)

Only authorization user can key in password to unlock the console, but

according the user authorization setting, different user will have different

access computers.

● **Change Administrator Password:**

● **Change User Name and Password:**

● **User PC Channel Authorization Setting**

```
                        Security
           Security Mode :  OFF
      Admin / Password  : ++++++
                                    1        2        3
                   User Name : ABC    DEF    GHI
      Ch   Name
      01   File    Security           □        □        □
      02   Mail    Server             ⊠        □        □
      03   Web     Server1      ▶     ⊠        ⊠        ⊠
      ▼04  R&D     Switch1            □        □        ⊠
      Tab: next              ←→  : change page
      A : all    1 : U1    2 : U2    3 : U3
      Esc: save, return
```

● **F6 Lock Port**

```
      1st                Main  Menu              02
                                        ↑ ↓ : Select
         CH      Name              S T A
         01      File    Server     ⌨ s
         02      Mail    Server     ⌨ s
         03              Lock  Port
         04      Password :                      Tag
         05        Confirm :
         06      Web Server2        -    Change
         07      R&D Switch2    ⌨  -   Esc:
         08      Ch08               -    OSD  Exit

      F1: Setup                 F4: Rename
      F2: Scan                  F5: Security
      F3: Lock                  F6: Lock Port
```

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After PC port locked, "**L**" mark will show in the **STA** field, until unlock

(Select F6 and key in password again, port unlock)

● **F3 Console Lock Mode Banner:**

Security	Mode	Protected

After into the Security lock mode, this banner will display until Unlock

The console device and KVM button will lock (no any function);

the keyboard will just accept the correct password only.

(press any key to into the unlock window)

● **Unlock Window:**

```
Name     :  JERRY
Password :  ▮
```

After key-in correct User Name and Password, the system will

Unlock (leave the Security mode), screen will into the normal and all device

are available to operating (according the authorization setting).

If you forget the password, the only way to permanently disable the security function is use a universal password to unlock KVM. You need to key-in this unlock password to release your device and KVM, then you can restart everything.

Universal password will let your KVM go back to default administrator password, Universal password: **(Name: EZLINK, Password: EZLINK)**

● Function Control (**Hot-key commands)**

■ *Call OSD Menu (OSD model only)*
Pressing the <**Scroll Lock**> key twice and '**Space Bar**' and <**ENTER**>, then the OSD '**Main Menu**' will on the screen.
(Or after **<Scroll Lock>** twice and press **<ENTER>** directly)
★Hot key can be change become<caps lock>

■ *Channel Select*
◆ OSD: Use Up/Down arrow and <ENTER> to select the channel
directly.

● Hot-key: Pressing the <Scroll Lock> key twice then Key-in
a channel number (1 to 16) and press <ENTER>

● **Left<Alt> or right <Alt> twice** the PC channel will automatically
shift left/right one channel (channel decrease / increase to next)
while <Alt> enable.

● **<Alt>** shif function default was off, pressing hot key twice then
<Alt> and <Enter> you can on/off this funtion alternately.
if buzzer was on, it will generates a beep for correct operating.

■ *Auto Scan*
◆ OSD: Call OSD '**Main Menu**' then press <F2>.

● Hot-key: Pressing the <Scroll Lock> key twice then
<S> and <ENTER>.

■ *Console Lock (OSD model only)*
◆ OSD: Call OSD '**Main Menu**' then press <F3>.
(<F5>: Security Mode must be turn on first)

● Hot-key: Pressing the <Scroll Lock> key twice then
<H> and <ENTER>.

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■ *Console Unlock (OSD model only)*

    ◆ OSD: Display the message only.

    ● Hot-key: Pressing any key into the Unlock window then entry the

            correct User Name and Password, KVM and console

            device will unlock and back to normal operation.

■ *Setup Mode (OSD model only)*

    ◆ OSD: Call OSD '**Main Menu**' then press <F1>.

    ● Hot key: Non Hot-key operating.

■ *Daisy Chain Layer Change (Channel Select)*

    ◆ OSD: Call OSD '**Main Menu**' then select channel and press

            <Enter> layer by layer.

    ● Hot-key: Pressing the <Scroll Lock> key twice then

            <D>, number (1,2,3…. 16) and <ENTER>.

    If cascade 3 layer, you can select last layer directly,

    D2D5D7: layer 1 channel 2 links to layer 2 channel 5 then select

    layer 3 channel 7.

■ *Buzzer sound ON / OFF*

    ● Hot-key: Pressing the <Scroll Lock> key twice then

            <B>, buzzer sound will ON /OFF alternately.

■ *Hot-key Select*

    ◆ OSD: Call OSD '**Main Menu**' then press [F1] and select hot-key

            change.

    ● Hot-key: Pressing correct hot-key twice the<K>,

            The hot-key will change to another one. (<Scroll Lock>

            or<Caps Lock>)

-------------- Cascade Configuration

Connection

Before connecting a device (a computer or a Slave) to the Master KVM, you must turn off them. The Master can be a any model and you just put one OSD KVM to the Master and Non-OSD for the Slave, then all cascade system will become full OSD function operating.

The ports labeled "**PC 1**"~"**PC 16**" can be connected to either a computer or a *Slave*'s **CONSOLE** port, as shown in figure 9. A power adapter with DC 9V/500mA output rating must be connected to the *Master.*
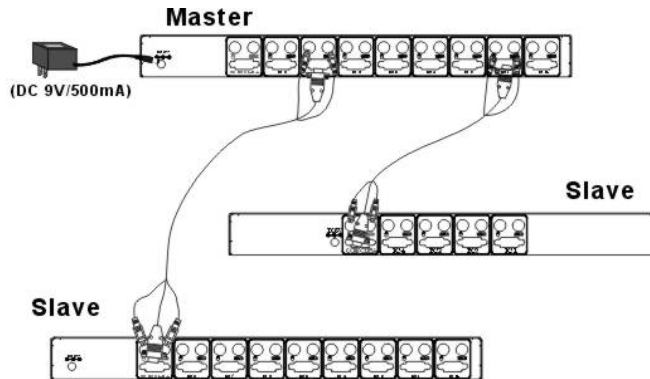

Figure 9: Slave console connection

The maximum number of computers controlled by a master/slave configuration with all 4-port switches is 64 with 16 *Slaves* and each *Slave* connects to 4 computers, see figure 10. For an all 8-port switch configuration, the number is 512 with 64 *Slaves* and each *Slave* connects to 8 computers, see figure 11. If a 16-port is a *Master*, the maximum capacity is 4096, see figure 12. The *Master* connects to 256 *Slaves* (**PC 1** to **PC 16**), and each *Slave* connects to 16 computers.
If the *Master* is already OSD-equipped, all the *Slaves* are not OSD required. This is the extra saving of using this line of KVM switches.
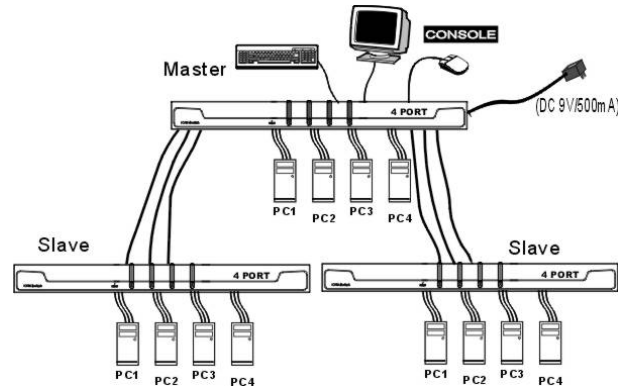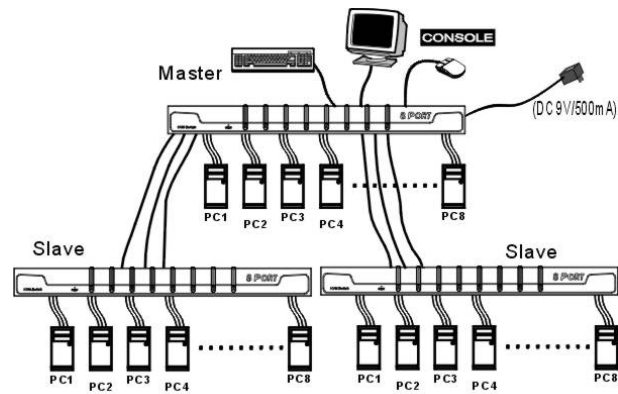
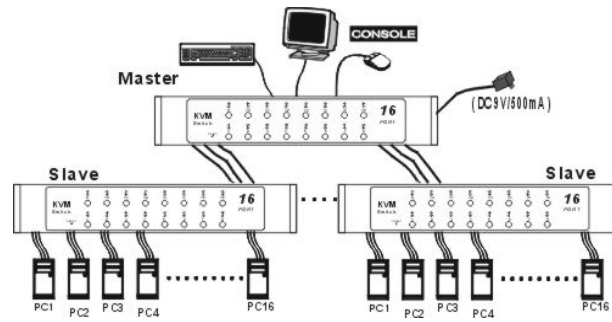*Figure 10: Cascaded 4-port KVM Switch*

Figure 11: Cascaded 8-port KVM Switch

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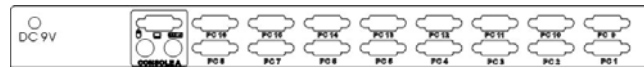*Figure 12: Cascaded 16-port KVM Switch*

> **For OSD model:**
> After connection completes, you should call OSD menu to check if the *Master* recognizes the *Slaves*. A plus mark (+) is placed to the left of the channel name indicating the port is connected to a *Slave not* a computer.

Change Configuration while Running

Devices at any **PC** port can be changed at any time after initial power-up. If you change any one of the "**PC 1**" to "**PC 16**" ports connection from a computer to a *Slave* or change Slave cascade port, or replace the devices of a port; the OSD will update this change when next time it is activated. *[NOTE: Any new device, a computer or a Slave, must be turned off before it is connected to the Master.]*

Note : example for different model (front panel and back panel)

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----------------------- Appendices

Specifications:

Specifications		X104L X104LD	X108L X108LD	X116L X116LD
Computer port number		*4*	*8*	*16*
Cascade control PC number		*Up to 64*	*Up to 512*	*Up to 4096*
On-screen display (OSD)		*104LD*	*X108LD*	*X116LD*
Front panel button control		*4*	*8*	*16*
Hot plug-and-play		*Yes*		
Hot-key control		*Yes*		
Rack-mount kit		*Option*	*Built-in*	
Automatic scan interval	OSD	*5 ~ 90 sec., 5 sec. step*		
	Non OSD	*5 ~ 250 sec., 1 sec. step*		
Programmable scan pattern		OSD model only		
Year 2000 Compliant		*Yes*		
Cable length (Max)		*30M (100ft) at CONSOLE* *30M (100ft) at PC*		
VGA		*Max.2048 x 1536(300MHZ)* *， DDC1/ DDC2B*		
Computer keyboard mouse monitor		*PS/2* *PS/2， serial (with adapter)* *HD-DB-15 male*		
Console keyboard mouse monitor		*PS/2* *PS/2* *HD-DB-15 female*		
H x W x D (mm) (in) size		*44x440x132* *1.7x17.3x5.2* *1U*	*44x440x132* *1.7x17.3x5.2* *1U*	*75x440x125* *3.0x17.3x4.9* *2U*
Power supply		*(9V DC， 500mA)*		

- *You can mix different models in cascade applications.*

Troubleshooting:

Make sure that all cables are well seated. Check that keyboard/mouse cables are not swapped. Label and bundle the cables for each computer to avoid confusion when connected to the KVM Switch.

Symptom	*Possible causes*	*Recommended solutions*
No Monitor Screen	● No power to KVM ● Loose connection ● Monitor not multi-sync	● Plug the power adaptor. ● Reconnect monitor cable ● Use multi-sync monitor
Keyboard error on boot	● Loose connection ● Keyboard failure	● Make sure keyboard cables are Well seated ● Change keyboard
PC port serial Mouse do not work	● Incorrect serial mouse adaptor ● Loose connection	● Make sure use specify serial mouse adaptor ● Reconnect cable/adaptor
Multi-function Mouse do not Work normally	● Mouse do not set in PS/2 standard	● Make sure the mouse is set in the PS/2 standard
Keyboard strokes shifted	● The computer was in shifted state when last switched	● Press both SHIFT keys down a couple of times
Master/Slave Does not work	Incorrect configuration Or improper installation procedures	● Make sure the slave's CONSOLE is connected to *Master's* PC port ● Remove any possible power supply to the slave (unplug all cables), before connecting it to the *Master*
KVM Auto Scan does not switch PC	● All PCs are off or only one PC is power on, Scan mode set for PC-ON only ● *Scan type* is **s** mark selected but no power-up PC is **s** mark selected in OSD. (screen blank)	● Turn on computers Set **Selected** *Scan Type* in OSD and determine which PCs is s mark selected, do it in OSD. Press any key to abort *Auto Scan* mode then Press <Scroll Lock> twice and <S>, <Enter> to restart the *Auto Scan*
Double OSD images at cascade configuration	● Improper slave connection procedure. ● Loose connection	● Remove any possible power supply to the *Slave* (unplug all cables), before connecting it to the *Master* ● Make sure cable is connect Well, slave console link to master PC port.

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OSD menu is not at the proper position	• OSD menu has fixed resolution and its size varies due to computer VGA resolution changes.	Use <F1>: Setup\Position to move OSD menu and banner to proper position.
Can not select a computer connected to a slave	• Improper *Master* unit connection • Improper slave unit connection • Too many levels of slaves	• Only *Master* PC port can be connected to slaves. • Connect slave CONSOLE port to PC ports of the *Master* • Only two level of slave units is allowed. Pop up OSD again to check if *Master* recognizes the slave connection. Look for plus (+) mark and the number in OSD menu.
The KVM Switch fails to function occasionally.	• Computers do not supply enough power.	• Make sure a power adapter with minimum of 9V 500mA output rating is firmly connected to the power jack.

Limited Warranty

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